Cross-cultural adaptation of the male genital self-image scale in iranian men

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Abstract: INTRODUCTION: Certain sexual health problems in men can be attributed to genital self-image. Therefore, a culturally adapted version of a Male Genital Self-Image Scale (MGSIS) could help health professionals understand this concept and its associated correlates. AIM: To translate the original English version of the MGSIS into Persian and to assess the psychometric properties of this culturally adapted version (MGSIS-I) for use in Iranian men. METHODS: In total, 1,784 men were recruited for this cross-sectional study. Backward and forward translations of the MGSIS were used to produce the culturally adapted version. Reliability of the MGSIS-I was assessed using Cronbach and intra-class correlation coefficients. Divergent and convergent validities were examined using Pearson correlation and known-group validity was assessed in subgroups of participants with different sociodemographic statuses. Factor validity of the scale was investigated using exploratory and confirmatory factor analyses. MAIN OUTCOME MEASURES: Demographic information, the International Index of Erectile Function, the Body Appreciation Scale, the Rosenberg Self-Esteem Scale, and the MGSIS. RESULTS: Mean age of participants was 38.13 years (SD = 11.45) and all men were married. Cronbach of the MGSIS-I was 0.89 and interclass correlation coefficients ranged from 0.70 to 0.94. Significant correlations were found between the MGSIS-I and the International Index of Erectile Function ($P < .01$), whereas correlation of the scale with non-similar scales was lower than with similar scale (confirming convergent and divergent validity). The scale could differentiate between subgroups in age, smoking status, and income (known-group validity). A single-factor solution that explained 70% variance of the scale was explored using exploratory factor analysis (confirming uni-dimensionality); confirmatory factor analysis indicated better fitness for the five-item version than the seven-item version of the MGSIS-I (root mean square error of approximation = 0.05, comparative fit index > 1.00 vs root mean square error of approximation = 0.10, comparative fit index > 0.97, respectively). CONCLUSION: The MGSIS-I is a useful instrument to assess genital self-image in Iranian men, a concept that has been associated with sexual function. Further investigation is needed to identify the applicability of the scale in other cultures or populations.

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MEN'S SEXUAL HEALTH

Cross-Cultural Adaptation of the Male Genital Self-Image Scale in Iranian Men

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ABSTRACT

Introduction: Certain sexual health problems in men can be attributed to genital self-image. Therefore, a culturally adapted version of a Male Genital Self-Image Scale (MGSIS) could help health professionals understand this concept and its associated correlates.

Aim: To translate the original English version of the MGSIS into Persian and to assess the psychometric properties of this culturally adapted version (MGSIS-I) for use in Iranian men.

Methods: In total, 1,784 men were recruited for this cross-sectional study. Backward and forward translations of the MGSIS were used to produce the culturally adapted version. Reliability of the MGSIS-I was assessed using Cronbach α and intra-class correlation coefficients. Divergent and convergent validities were examined using Pearson correlation and known-group validity was assessed in subgroups of participants with different socio-demographic statuses. Factor validity of the scale was investigated using exploratory and confirmatory factor analyses.

Main Outcome Measures: Demographic information, the International Index of Erectile Function, the Body Appreciation Scale, the Rosenberg Self-Esteem Scale, and the MGSIS.

Results: Mean age of participants was 38.13 years (SD = 11.45) and all men were married. Cronbach α of the MGSIS-I was 0.89 and interclass correlation coefficients ranged from 0.70 to 0.94. Significant correlations were found between the MGSIS-I and the International Index of Erectile Function ($P < .01$), whereas correlation of the scale with non-similar scales was lower than with similar scale (confirming convergent and divergent validity). The scale could differentiate between subgroups in age, smoking status, and income (known-group validity). A single-factor solution that explained 70% variance of the scale was explored using exploratory factor analysis (confirming uni-dimensionality); confirmatory factor analysis indicated better fitness for the five-item version than the seven-item version of the MGSIS-I (root mean square error of approximation = 0.05, comparative fit index > 1.00 vs root mean square error of approximation = 0.10, comparative fit index > 0.97, respectively).

Conclusion: The MGSIS-I is a useful instrument to assess genital self-image in Iranian men, a concept that has been associated with sexual function. Further investigation is needed to identify the applicability of the scale in other cultures or populations.

Key Words: Sexual Function; Genital Self-Image; Male Genital Self-Image Scale; Men; Iran

INTRODUCTION

According to recent research evidence, body image is a key concept that can positively or negatively affect sexual interest and confidence.[1,2] Individuals reporting less concern with their overall body image and considering themselves as having a socially accepted physical appearance, and hence, a healthy self-concept, are more likely to engage in intimate relationships and sexual activities and to enjoy such activities with their partners.[3] In addition, it has been recognized that a person's sexual self-concept is under the direct influence of that person's body image.[4]

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Genital self-image (GSI), an important component of body image and a core element of sexual health, describes attitudes and behaviors in relation to one's genitals.[5] The subjective experience and enjoyment of sexuality has been shown to be affected by GSI.[6] GSI also has been found to be a powerful predictor of sexual unresponsiveness and sexual dysfunction that can result from a negative GSI.[7] Furthermore, genital identity is determined by genital self-image and seems to play a crucial role in the development of sexual orientation.[8] Previous studies have repeatedly reported a positive association between a healthy GSI and frequency of sexual activities, orgasm, and relationship quality.[9,10] Conversely, a negative GSI has been suggested to be related to problems such as sexual avoidance or shame, embarrassment, anxiety, and dissatisfaction with sexual activity.[5] However, most of these studies have focused on women, whereas the importance of GSI in men has been less investigated.

Several instruments such as the Female Genital Self-Image Scale,[11] the Genital Perceptions Scale,[12] and the Genital Self-Image Scale[9] are available for the assessment of GSI. Most of these scales have been designed for use in women, and therefore little is known regarding men's attitudes toward their genital appearance. Most studies on GSI in men have focused mainly on GSI as an outcome measurement of genital surgical interventions (eg, penile prosthesis or treatment of hypospadias).[9,13] Therefore, healthy men's general attitudes regarding their genitalia have been completely neglected thus far. One of the first noteworthy attempts to address this knowledge gap was the development of an instrument to measure GSI in men, the Male Genital Image Scale.[14] The initial scale relied mainly on the assessment of objective features such as length, size, and texture of the penis instead of focusing on subjective perceptions regarding the body's appearance and functionality. Moreover, the scale with its 15 items is generally considered too extensive to investigate an issue that might make informers reluctant. In addition, because the main body of this scale concerned general body image, the validity and reliability of the instrument have received limited support. These problems have been addressed in a newly developed scale, the Male Genital Self-Image Scale (MGSIS).[15] This brief scale consisting of only seven items has been tested in a nationally representative sample of men and has produced promising results in reliability and validity.

AIM

GSI and perceptions of sexuality are influenced by numerous factors including cultural and societal norms. Hence, culturally adapted tools to assess GSI are needed that could help in the collection of comparative data of populations from different cultural backgrounds. To address this, the aim of the present study was the cultural adaption of a previously developed scale (MGSIS) for the assessment of GSI in a population sample of Iranian men.

METHODS

Participants and Study Design

The present study was conducted from July 2014 through February 2015. Participants were Iranian men living in Qazvin, a city near Tehran. Two thousand men were selected from 25 health posts across Qazvin to participate in this cross-sectional study. The optimal size of this convenience sample was calculated using Cohen tables to detect an r value equal to 0.1 by a two-tailed α value equal to 0.05 with 99% power. In Iran, health care services are provided through a nationwide network. The basic units of this nationwide network providing health care in urban areas are health posts. Each health post covers a population of approximately 12,000 individuals and keeps vital household records. To be eligible for participation in this study, participants had to be at least 18 years old, married, able to read and write Persian, and provide written consent. Participants were excluded if they had any psychiatric disorders such as psychosis, schizophrenia, or mental retardation. Eligible men (n = 2,000) were invited to participate in the study by face-to-face invitation when attending the health posts. Interested participants were interviewed (n = 1,775) in a private room located at these health posts. Interviews were performed by trained and experienced researchers who had attended two workshops to improve their interview skills before the start of this study. After the receipt of more in-depth information regarding the study, participants were asked to sign a written consent form. After providing consent, participants were instructed to complete a set of questionnaires asking about sociodemographic characteristics, erectile functioning, and GSI. A structured interview was conducted to decrease missing data as far as possible. Written informed consent was obtained from each participant's wife. The study was approved by the ethics committee of the Qazvin University of Medical Sciences (Qazvin, Iran) in January 2014. After this process, information and data on 1,764 men were available.

Measurements

Sociodemographic Characteristics

Sociodemographic information was collected using self-constructed questions about age, educational status, duration of marriage, family income, and smoking habits. Height (on a stadiometer without shoes) and body weight (to the nearest 0.1 kg using digital scales with participants wearing light clothing without shoes or coats) were measured on site.

Erectile Function

Erectile function in the past 4 weeks was assessed using the International Index of Erectile Function (IIEF). The IIEF is a 15-item scale covering five domains including erectile function (six items), orgasmic function (two items), sexual desire (two items), intercourse satisfaction (three items), and overall sexual

satisfaction (two items). All items are scored on a five-point or six-point Likert-type scale, with higher scores indicating better sexual functioning.[16] The culturally adapted version of the IIEF has been shown to be a highly valid and reliable tool in Iranian general and clinical populations.[17]

Body Appreciation

Body image was assessed using the Body Appreciation Scale (BAS). All responses to the 13 items are scored on a five-point scale ranging from 1 (never) to 5 (always), with higher scores reflecting greater body appreciation. The BAS has been translated into numerous languages including Persian and has shown good cross-cultural reliability and validity.[18]

Self-Esteem

The Rosenberg Self-Esteem Scale (RSES) is a 10-item scale used to assess self-esteem in various social and clinical settings. Items are presented in two forms for positive and negative feelings about oneself. All items are rated on a four-point Likert-type scale, ranging from 1 (totally disagree) to 4 (totally agree), with higher scores indicating higher self-esteem. The RSES has been translated into several languages including Persian and the psychometric properties of the Iranian version of the RSES have been confirmed in a large validation study.[19]

Genital Self-Image

The MGSIS is composed of seven items to assess men's feelings and beliefs about their genitals. All items are scored on a four-point Likert-type scale, ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores indicating a more positive GSI. The MGSIS was initially tested in a nationally representative sample of 1,019 American men and was been found to be an acceptable tool displaying high validity and reliability.[20]

Cultural Adaptation

Permission to use and translate the MGSIS into Persian was granted by the developer, Dr Debby Herbenick. The translation procedure was performed based on recommendations by Beaton et al[21] for cross-cultural questionnaire adaptations. First, the English version of the MGSIS was translated into Persian by two bilingual translators (forward translation) of different backgrounds (one was a general practitioner and the other was a native translator with a history background). Second, the two translators and project manager reconciled any discrepancies between the two translated versions and synthesized them. Third, two native English speakers fluent in Persian translated the interim Persian version of the MGSIS into English (backward translation). These translators had no medical background and were not aware of the original English version. To achieve cross-cultural equivalence, an expert committee was assembled, consisting of a urologist, a health psychologist, two nurses, two methodologists, and the four forward and backward translators. In a plenum, all versions of the questionnaire were reviewed and any discrepancies were resolved and consolidated. The main criteria considered were semantic equivalence, idiomatic equivalence, idiomatic equivalence, and conceptual equivalence. This step produced a pre-final Iranian version of the MGSIS (hereafter, MGSIS-I). This pre-final version was handed out to 55 men from different educational backgrounds who were asked to complete the questionnaire and to answer a set of questions regarding the questionnaire items, response options, and questionnaire general instructions. A problem with the translation of the term *sexual partner* in item 3 was detected.[22] Most men who participated in the pretest study found the wording too offensive. Therefore, after consultation with the expert committee, the term *sexual partner* was replaced by the term *wife*. Then, the psychometric properties of the final version of the translated MGSIS were assessed in the previously described sample of 1,764 married men. Two weeks after the first completion of the questionnaire, all participants were asked to recomplete the questionnaire. In this second wave, 1,554 men filled in the questionnaire.

Statistical Analysis

Statistical analyses were performed using SPSS 19.0 (SPSS, Inc, Chicago, IL, USA) and LISREL 8.80 (Scientific Software International, Inc., Skokie, IL, USA). For all analyses, the significance level was set at a P value less than or equal to .05. To assess the reliability of the MGSIS-I, internal consistency and test-retest reliability were estimated. To assess the questionnaire's homogeneity or internal agreement, Cronbach α coefficient was used. Item-total correlations were calculated to determine item internal consistency. Agreement or test-retest reliability was evaluated using intra-class correlation coefficients (ICCs). According to expert recommendations, a Cronbach α and an ICC of at least 0.7 were considered acceptable.[23] A correlation coefficient of at least 0.30 was considered acceptable.

To assess convergent validity, Pearson product-moment correlations between the MGSIS-I and IIEF subscales were calculated. Divergent validity was assessed by calculating Pearson product-moment correlations among the MGSIS-I, BAS, and RSES scores. A weak correlation (ie, $r < 30$) was expected, because the GSI would not be expected to be highly correlated with body image and self-esteem. Effect sizes were interpreted according to the recommendations of Cohen[24] ($0.10 > r < 0.30$, small effect size; $0.30 > r < 0.50$, medium effect size; $r > 0.50$, large effect size).

To assess the construct validity of the MGSIS-I, known group differences were tested using one-way analysis of variance. According to previous literature, we hypothesized that certain subgroups of men would show differences in GSI. For example, higher educational status has been associated with higher GSI

scores, whereas younger age has been linked to higher GSI scores.[20]

In addition to known group validity, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to assess the dimensionality of the scale items. For this assessment, the data were randomly split into two independent samples (n = 882 for subsample 1 and n = 882 for subsample 2) using the SPSS random case selection procedure. No significant differences between the two samples in sociodemographic characteristics could be detected. EFA was performed on subsample 1 to ensure that the set of the items stood together as a unidimensional factor. Factorability of the data was assessed by the Kaiser-Meyer-Olkin test and Bartlett test of sphericity. A Kaiser-Meyer-Olkin value of at least 0.70 and a statistically significant Bartlett test of sphericity result were considered a minimum criterion for the suitability of the data to be included in the EFA. Factors were retained if eigenvalues were higher than 1. To interpret individual factors, a minimum factor loading of 0.40 was used. EFA was conducted with principal components analysis with varimax orthogonal rotation.

Then, CFA was conducted on subsample 2 to confirm the validity of the results obtained from EFA. Because of the ordinal nature of the data, weighted least squares with the sample variance-covariance matrix and the asymptotic covariance matrix were used for CFA. Several fit indices were considered to assess the model fit including the χ^2index, the root mean square error of approximation (RMSEA), the goodness-of-fit index, the normed fit index (NFI), the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the parsimonious NFI (PNFI). RMSEA lower than 0.08, CFI of at least 0.90, NFI of at least 0.90, goodness-of-fit index of at least 0.90, and SRMR no higher than 0.08 were considered indications of adequate model fit.[25]

Previous studies have shown that views and attitudes regarding the genitals differ as a function of a man's erectile function. Studies have shown that men's concerns about their genitals can have a negative impact on their self-esteem and sexual functioning.[26] In consequence, men with erectile dysfunction might have difficulties in responding to the MGSI-I. To address this issue, a multiple-group CFA was used to test whether the seven items in the MGSIS-I operated equivalently across healthy men and men with erectile dysfunction. Factorial invariance across men's sexual health status (erectile dysfunction vs healthy) was evaluated using two models of invariance, configural and metric. In the first model, the number of factors and the items loading on the factors of a measurement were invariant across men's sexual health status. In the second model, individuals from different groups responded to the items in the same way. Assessment of fit for the CFA models was performed using the difference in CFI values (ΔCFI), the difference in RMSEA (ΔRMSEA) values, and the difference in SRMR values (ΔSRMR). Measurement invariance is established when ΔCFI is no higher than 0.01, ΔRMSEA is no higher than 0.015, and ΔSRMR is no higher than 0.01.[27]

RESULTS

Descriptive Analyses

The mean age of the sample was 38 ± 13 years. One third of men (39.1%) had a family income of $100 to $500 and reported an average of 8.7 ± 4.4 years of education. All men were married, with a mean duration of marriage of 7.7 ± 5.3 years. The sample characteristics are listed in Table 1. The overall missing item response of the MGSIS-I was 0.93%. Most men (94.04%) found the questions and topic easily understandable and acceptable.

Internal Consistency Reliability

Cronbach α coefficient for the total MGSIS-I scale was 0.89 (Table 2). To assess item homogeneity, item-total correlations were computed (Table 2). Results showed that all corrected item-total correlations exceeded 0.30 (median = 0.63, range = 0.56−0.72).

Test-Retest Reliability

Test-retest reliability was evaluated by calculating the ICC over a 15-day interval in a subsample of 1,554 men (88.1% of all participants). No significant differences between the two assessment points could be detected for any of the seven MGSIS-I items ($P > .05$). ICCs for test-retest reliability of the MGSIS-I version are presented in Table 2. All ICCs were lower than 0.70 (range = 0.70−0.94; Table 2).

Inter-Correlations Between MGSIS-I and IIEF

Pearson product-moment correlation was used to assess the associations between MGSIS-I and IIEF subscale scores (Table 3). All MGSIS-I items correlated significantly with one another (r = 0.33−0.78, $P < .01$ for all) and the MGSIS-I total score correlated significantly with the IIEF subscales (r = 0.31−0.62, $P < .01$; Table 4). Response distributions to the

Table 1. Characteristics of Population Sample of Iranian Men (N = 1,764)

Characteristic	
Age (y), mean (SD)	38.13 (11.45)
Duration of marriage (y), mean (SD)	7.67 (5.31)
Education (y), mean (SD)	8.70 (4.39)
Height (cm), mean (SD)	173.40 (6.59)
Weight (kg), mean (SD)	70.13 (9.10)
Monthly family income ($), n (%)	
≤200	135 (7.7)
200−500	564 (32.0)
500−1,000	689 (39.1)
1,000−1,500	249 (14.1)
≥1,500	95 (5.4)
Missing	32 (1.8)
Smoking status, n (%)	
Current smoker	793 (44.5)
Non-smoker	971 (55.0)

Table 2. Score, SD, and Cronbach α of the Seven-Item MGSIS in a Population Sample of 1,764 Men and Test-Retest Reliability in a Subsample of 1,554 Men

	Mean	SD	ICC (95% CI)	Cronbach α	Item-total correlation
I feel positively about my genitals	2.96	0.74	0.94 (0.93–0.95)	—	0.56
I am satisfied with the appearance of my genitals	3.01	0.73	0.88 (0.87–0.90)	—	0.63
I would feel comfortable letting a sexual partner look at my genitals	2.85	0.95	0.70 (0.67–0.73)	—	0.72
I am satisfied with the size of my genitals	2.81	0.95	0.89 (0.87–0.90)	—	0.70
I think my genitals work the way they are supposed to work	3.09	0.75	0.85 (0.83–87)	—	0.59
I feel comfortable letting a health care provider examine my genitals	2.34	0.89	0.78 (0.72–0.84)	—	0.66
I am not embarrassed about my genitals	3.07	0.81	0.88 (0.86–0.89)	—	0.61
MGSIS-7	20.39	3.88	0.88 (0.87–0.89)	0.89	—

ICC = interclass correlation coefficient; MGSIS = Male Genital Self-Image Scale.

MGSIS-I items are presented in Table 5. More than half the men did not feel comfortable with their genitals being examined by health care providers. Almost one third of the men were not happy with the size of their genitals.

Known-Group Comparison

Differences between the MGSIS-I scores and dependence of other variables (age group, smoking status, and monthly family income) are presented in Table 6. Significant differences in the overall score of the MGSIS-I were detected across all demographic subgroups, including age, smoking status, and family income (Table 6).

Factor Validity

EFA conducted on subsample 1 (n = 882) showed a Kaiser-Meyer-Olkin value of 0.773 and a significant Bartlett test of sphericity value (χ^2 = 3,436, df = 21, $P < .0001$). EFA of the MGSIS-I identified a single factor accounting for 63.29% of the observed variance (Table 7). All factor loadings were at least 0.40 with exception of item 6, which showed a factor load of 0.25. According to the EFA results, items 4 and 6 were removed from the original seven items, leaving five items (categorized as a single factor) to explain 69.35% of the observed variance.

Validation of the EFA results was conducted with CFA on subsample 2 (n = 882). In the first model, the original seven-item version was tested. The single-factor model that included all seven factors provided a poor fit (χ^2 = 68.02, df = 14, $P < .001$, RMSEA = 0.101 [0.08–0.013], CFI = 0.97, NFI = 0.96, SRMR = 0.049, PNFI = 0.40), with all estimated parameters being statistically significant ($P < .05$). After omitting items 4 and 6, the single-factor model showed an excellent fit (χ^2 = 8.31, df = 4, P = .083, RMSEA = 0.050 [0.001–0.110], CFI = 1.0, NFI = 0.99, SRMR = 0.021, PNFI = 0.64).

Table 3. Correlations Between the MGSIS and IIEF subscales*

	1	2	3	4	5	6
1. 7-Item MGSIS	—	0.31	0.28	0.40	0.34	0.39
2. IIEF erectile function		—	0.52	0.54	0.57	0.59
3. IIEF orgasmic function			—	0.55	0.58	0.49
4. IIEF sexual desire				—	0.60	0.57
5. IIEF intercourse					—	0.62
6. IIEF overall satisfaction						—

IIEF = International Index of Erectile Function; MGSIS = Male Genital Self-Image Scale.
*Pearson correlation.

Invariance Across Sexual Health Status

A two-group CFA was conducted to evaluate whether the one-factor solution fitted simultaneously across men with erectile dysfunction (n = 467) vs healthy men (n = 1,297). The first model (ie, configural invariance) showed excellent goodness-of-fit indices (χ^2 = 3.50, df = 19, P = .091, RMSEA = 0.010 [0.0–0.028], CFI = 1.0, SRMR = 0.06, PNFI = 0.64). However, the more restrictive model (metric invariance) provided better goodness-of-fit indices (χ^2 = 3.02, df = 15, P = .112, RMSEA = 0.011 [0.001–0.024], CFI = 1.0, SRMR = 0.05, PNFI = 0.70). With attention to the minor difference between models, it could be interpreted that the single-factor MGSIS-I was invariance across men with erectile dysfunction and healthy men.

DISCUSSION

After conducting EFA and CFA by applying different methods to assess a range of psychometric estimates in a large sample of Iranian men, we found evidence for good reliability and validity of the MGSIS-I, the translated and culturally adapted Persian version of the MGSIS.

Table 4. Inter-Correlations Between Male Genital Self-Image Scale Items*

	1	2	3	4	5	6	7
1. I feel positively about my genitals	—	0.78	0.62	0.41	0.43	0.56	0.46
2. I am satisfied with the appearance of my genitals		—	0.55	0.50	0.62	0.41	0.53
3. I would feel comfortable letting a sexual partner look at my genitals			—	0.34	0.41	0.34	0.47
4. I am satisfied with the size of my genitals				—	0.59	0.35	0.43
5. I think my genitals work the way they are supposed to work					—	0.37	0.51
6. I feel comfortable letting a health care provider examine my genitals						—	0.33
7. I am not embarrassed about my genitals							—

*Pearson correlation.

The translation of the scale with a standard process helped us to provide nearly the same wording of the original scale. The only item that required adaptation based on cultural issues was item 3: "I have comfort feeling about letting to my sexual partner for looking at my genital organs." The term *sexual partner* was reported as offensive in pretesting of the scale and we replaced it with *wife*. In Eastern cultures, especially among Muslims, loyalty to a life partner is an important value and the partner spends a long time, usually a lifetime, with his spouse. Therefore, the term *sexual partner* was interpreted as *wife* in our sample. Similar rewordings have been reported in cultural adaptions of other scales related to sexual activity.[18] For example, in the Arabic version of the Female Genital Self-Image Scale, the word *zojeh*, which is the Arabic translation of *wife*, was used.[28]

In the initial validation study of the MGSIS, only 55.1% of the 1,900 targeted men decided to participate in the study.[20] Response rate in the present study was considerably higher (88.2%), which could due to the recruitment method. Herbenick et al[20] recruited their participants by E-mail, whereas potential participants in our study were invited during a face-to-face encounter. Face-to-face recruitments, especially for explicit topics such as sexual issues, could provide more positive results than indirect methods. Furthermore, it might decrease the percentage of missing data to a minimum, as can be seen in the present study (<1%). The overall higher response rates in other sexuality-related studies that used direct invitations and recruitment methods provide further evidence for this assumption.[29] However, using methods such as E-mails or postal surveys have shown certain advantages such as lower cost and less need for personnel, thus allowing for the collection of much larger datasets.[30]

The large sample of the study allowed a rigorous assessment of the questionnaire's psychometric properties by conducting EFA and CFA. Although many investigators have stated that a sample of approximately 200 is sufficient to perform factor analyses, larger samples allow for more precise and exact data analyses and less flawed outcomes by decreasing standard errors and minimizing other estimation errors.[31] As such, the likelihood of detecting minimal differences or obtaining significant results increases considerably. Reliability of the MGSIS-I was assessed with Cronbach α and test-retest reliability and resulting estimates were comparable to the original study by Herbenick et al[20] In contrast to Herbenick et al[20] who used Pearson correlation between pre- and post-scores, we used ICCs to assess the stability of the scale over time. Because ICCs use centered data with pooled means, this approach might provide a more natural measurement of test-retest reliability compared with Pearson correlation.[32] Moreover, positive and significant correlations between the IIEF and the MGSIS-I indicated good criterion-related validity. As expected, a more positive attitude regarding GSI was predictive of greater satisfaction with erectile function. Findings from previous studies that emphasized the negative correlation between sexual dysfunction and GSI are in line with the outcomes of the present study.[33,34]

Table 5. Distribution of Responses to Male Genital Self-Image Scale Items

	Completed, %	Strongly disagree, %	Disagree, %	Agree, %	Strongly agree, %
1. I feel positively about my genitals	92.18	4.0	17.2	56.7	22.1
2. I am satisfied with the appearance of my genitals	91.84	4.0	14.2	57.9	23.9
3. I would feel comfortable letting a sexual partner look at my genitals	93.56	11.6	13.3	47.2	27.9
4. I am satisfied with the size of my genitals	87.34	7.1	21.4	52.1	19.4
5. I think my genitals work the way they are supposed to work	91.78	4.9	8.5	56.5	30.1
6. I feel comfortable letting a health care provider examine my genitals	88.66	22.8	29.7	29.6	17.9
7. I am not embarrassed about my genitals	90.76	5.3	9.3	53.5	31.9

Table 6. Comparisons of MGSIS-I Scores Based on Sociodemographic Subgroups of the Sample (N = 1,764)

	n	MGSIS-I score, mean (SD)	*F*	*P* value
Age*				
18–24	246	19.83 (4.36)	12.88	<.001
24–34	460	20.20 (3.64)		
35–44	346	21.87 (4.09)		
44–54	236	22.07 (3.13)		
54–64	301	19.33 (2.22)		
≥65	175	18.00 (3.61)		
Smoking status†				
Current smoker	793	19.80 (4.03)	13.46	<.001
Non-smoker	971	21.55 (3.36)		
Monthly family income ($)*			8.45	<.001
≤200	135	19.92 (3.83)		
200–500	564	20.35 (3.97)		
500–1,000	689	20.71 (3.79)		
1,000–1,500	249	21.46 (3.73)		
≥1,500	95	22.55 (4.45)		

MGSIS-I = Male Genital Self-Image Scale adapted for Iranian men.
*By one-way analysis of variance.
†By t-test.

The significant association between general body image, as measured by the BAS, and GSI confirmed the convergent validity of the MGSIS-I. The findings are congruent with the results reported by DeMaria et al,[35] suggesting GSI is considered a crucial part of whole body image and, despite the genitalia, might not have a direct impact on a person's appearance; its effect might contribute to a more positive or negative personal regard for self-concept and body image in men and women. Furthermore, the positive correlation between self-esteem and genital body image found in our study suggests that men who have an affirmative attitude for their genital appearance and function also show higher self-esteem, especially for engaging in sexual behaviors with their partners. Similarly, Udall-Weiner[36] in a study on gay men found that body image was predicted significantly by self-esteem. Also, Ghezelseflo et al[37] in a study conducted in Tehran found that body image and self-esteem in couples with sexual dissatisfaction were lower than in sexually satisfied couples.

Table 7. Principal Component Analysis for Items of the MGSIS Adapted for Iranian Men

	7-Item MGSIS	5-Item MGSIS
1. I feel positively about my genitals	0.80	0.87
2. I am satisfied with the appearance of my genitals	0.83	0.89
3. I would feel comfortable letting a sexual partner look at my genitals	0.55	0.65
4. I am satisfied with the size of my genitals	0.42	—
5. I think my genitals work the way they are supposed to work	0.68	0.67
6. I feel comfortable letting a health care provider examine my genitals	0.25	—
7. I am not embarrassed about my genitals	0.60	0.74
Eigenvalue	3.32	3.76
Variance, %	63.29	69.35

MGSIS = Male Genital Self-Image Scale.

As expected, some demographic factors, such as age and income, produced significant differences among the men in GSI score. In the original validation of the scale, consistent with our study, various age groups had different MGSIS scores and groups that had more sexual activity (juveniles and adults) achieved higher scores than younger or older persons.[20] However, men who were non-smokers or those with higher income also had significantly higher scores than others. The association between an acceptable body image and no smoking has been established in previous studies.[38,39]

The uni-dimensionality of the MGSIS was another finding of the present study, which was a replication of the study by Herbenick et al.[20] EFA, similar to the previous study, indicated items of the scale that could be loaded as a single factor, which is the GSI scale. This explained nearly 63% of the variance, which is considerable. This value for original study was 71%. Herbenick et al suggested an alternative model of the scale with five items (omitting items 4 and 7 because of redundancy). We also performed the CFA with the five-item scale, which improved fitness of the model. Therefore, for parsimonious purposes, the summarized version of the scale also could provide identical results to the full version.

Limitations

Several potential study limitations should be noted. First, a convenience sample of men from a small geographic area was included in the study. Therefore, our findings might not be generalizable to all Iranian men. However, because the response rate was high and missing data were minimal, the internal validity might still be representative. Second, although data were collected at two time points but with a short interval, the responsiveness of the scale to changes, especially medical treatments or health conditions, was not estimated. Future use of the scale using longitudinal designs should consider the potential long-term variability of the scale. Third, we assessed the scale in a homogenous group of married men with heterosexual orientation. Thus, using the scale in different populations from different backgrounds, especially minority groups, might provide different findings.

CONCLUSION

The study found the MGSIS-I to be a valid and reliable tool to evaluate GSI in Iranian men. The full and constricted

questionnaire versions with seven and five items, respectively, provided good psychometric properties. Because a considerable part of sexual problems can be attributed to problems with GSI, assessment and further investigation of the role of GSI in the development of sexual dysfunctions should be considered.

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REFERENCES

1. Goodman M, Placik O, Matlock D, et al. Body image and sexual considerations of women completing genital plastic/cosmetic procedures: the Vase 2 Study. **J Sex Med 2013; 10:169**.
2. Knafo R, Haythornthwaite JA, Heinberg L, et al. The association of body image dissatisfaction and pain with reduced sexual function in women with systemic sclerosis. **Rheumatology (Oxf) 2011; 50:1125**.
3. Woertman L, van den Brink F. Body image and female sexual functioning and behavior: a review. **J Sex Res 2012; 49:184**.
4. Pascoal P, Beato A. Body image and sexuality in individuals self presented as with and without sexual difficulties. **J Sex Med 2008; 5:79**.
5. Schick VR, Calabrese SK, Rima BN, et al. Genital appearance dissatisfaction: implications for women's genital image self-consciousness, sexual esteem, sexual satisfaction, and sexual risk. **Psychol Women Q 2010; 34:394**.
6. Centner N, McCabe M. The influence of genital self-image on self-perceived sexual attractiveness, sexual wellbeing and relationship wellbeing. World Association of Sexual Heath (WAS): 21st World Congress for Sexual Health.
7. Yulevitch A, Czamanski-Cohen J, Segal D, et al. The vagina dialogues: genital self-image and communication with physicians about sexual dysfunction and dissatisfaction among Jewish patients in a women's health clinic in southern Israel. **J Sex Med 2013; 10:3059**.
8. Waltner R. Genital identity: a core component of sexual- and self-identity. **J Sex Res 1986; 22:399**.
9. Berman LA, Berman J, Miles M, et al. Genital self-image as a component of sexual health: relationship between genital self-image, female sexual function, and quality of life measures. **J Sex Marital Ther 2003; 29:11**.
10. Ackard DM, Kearney-Cooke A, Peterson CB. Effect of body image and self-image on women's sexual behaviors. **Int J Eat Disord 2000; 28:422**.
11. Herbenick D, Schick V, Reece M, et al. The Female Genital Self-Image Scale (FGSIS): results from a nationally representative probability sample of women in the United States. **J Sex Med 2011; 8:158**.
12. Reinholtz RK, Muehlenhard CL. Genital perceptions and sexual-activity in a college population. **J Sex Res 1995; 32:155**.
13. Andersen BL. Surviving cancer: the importance of sexual self-concept. **Med Pediatr Oncol 1999; 33:15**.
14. Winter H. An examination of the relationships between penis size and body image, genital image, and perception of sexual competency in the male. Thesis (PhD): New York University; 1999.
15. Herbenick D, Schick V, Reece M, et al. The development and validation of the Male Genital Self-Image Scale: results from a nationally representative probability sample of men in the United States. **J Sex Med 2013; 10:1516**.
16. Rosen RC, Riley A, Wagner G, et al. The International Index of Erectile Function (IIEF): a multidimensional scale for assessment of erectile dysfunction. **Urology 1997; 49:822**.
17. Pakpour AH, Zeidi IM, Yekaninejad MS, et al. Validation of a translated and culturally adapted Iranian version of the International Index of Erectile Function. **J Sex Marital Ther 2014; 40:541**.
18. Pakpour AH, Zeidi IM, Ziaeiha M, et al. Cross-cultural adaptation of the Female Genital Self-Image Scale (FGSIS) in Iranian female college students. **J Sex Res 2014; 51:646**.
19. Shapurian R, Hojat M, Nayerahmadi H. Psychometric characteristics and dimensionality of a Persian version of Rosenberg Self-esteem Scale. **Percept Mot Skills 1987; 65:27**.
20. Herbenick D, Schick V, Reece M, et al. The development and validation of the Male Genital Self-Image Scale: results from a nationally representative probability sample of men in the United States. **J Sex Med 2013; 10:1516**.

21. Beaton DE, Bombardier C, Guillemin F, et al. Guidelines for the process of cross-cultural adaptation of self-report measures. **Spine (Phila Pa 1976) 2000; 25:3186.**
22. Pakpour AH, Yekaninejad MS, Pallich G, et al. Using ecological momentary assessment to investigate short-term variations in sexual functioning in a sample of peri-menopausal women from Iran. **PLoS One 2015; 10:e0117299.**
23. Nunnally J, Bernstein I. Psychometric theory. New York, NY: McGraw-Hill; **1994.**
24. Cohen J. Statistical power and analysis for the behavioral sciences. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum; **1988.**
25. Browne MW, Cudeck R. Alternative ways of assessing model fit. **Sociol Methods Res 1992; 21:230.**
26. Morrison TG, Ellis SR, Morrison MA, et al. Exposure to sexually explicit material and variations in body esteem, genital attitudes, and sexual esteem among a sample of Canadian men. **J Mens Stud 2006; 14:209.**
27. Chen FF. Sensitivity of goodness of fit indices to lack of measurement invariance. **Struct Eq Model 2007; 14:464.**
28. Mohammed GF, Hassan H. Validity and reliability of the Arabic version of the Female Genital Self-Image Scale. **J Sex Med 2014; 11:1193.**
29. Zargar Shoushtari S, Afshari P, Abedi P, et al. The effect of face-to-face with telephone-based counseling on sexual satisfaction among reproductive aged women in Iran. **J Sex Marital Ther 2015; 41:361.**
30. Jones R, Pitt N. Health surveys in the workplace: comparison of postal, email and World Wide Web methods. **Occup Med (Lond) 1999; 49:556.**
31. Knapp TR, Sawilowsky SS. Minimizing sample size when using exploratory factor analysis for measurement. **J Nurs Meas 2004; 12:95, author reply 97.**
32. Shrout PE, Fleiss JL. Intraclass correlations: uses in assessing rater reliability. **Psychol Bull 1979; 86:420.**
33. Wilcox SL, Redmond S, Davis TL. Genital image, sexual anxiety, and erectile dysfunction among young male military personnel. **J Sex Med 2015; 12:1389.**
34. Sarhan D, Mohammed GF, Gomaa AH, et al. Female genital dialogues: female genital self-image, sexual dysfunction, and quality of life in patients with vitiligo with and without genital affection. **J Sex Marital Ther** PMID:25650731. E-pub ahead of print.
35. DeMaria AL, Hollub AV, Herbenick D. Using genital self-image, body image, and sexual behaviors to predict gynecological exam behaviors of college women. **J Sex Med 2011; 8:2484.**
36. Udall-Weiner D. Sexual identity development and self-esteem as predictors of body image in a racially diverse sample of gay men. **J Homosex 2009; 56:1011.**
37. Ghezelseflo M, Younes SJ, Amani R. Comparison of body image and self esteem among married individuals with sexual dissatisfaction and normal married individuals in Tehran. 3rd World Conference on Psychology, Counseling and Guidance, WCPCG-2012. **Procedia Soc Behav Sci 2013; 84:538.**
38. Croghan IT, Bronars C, Patten CA, et al. Is smoking related to body image satisfaction, stress, and self-esteem in young adults? **Am J Health Behav 2006; 30:322.**
39. Okeke NL, Spitz MR, Forman MR, et al. The associations of body image, anxiety, and smoking among Mexican-origin youth. **J Adolesc Health 2013; 53:209.**